REMARKS

The drawings stand objected under 37 C.F.R. §1.83(a) because they failed to show the tri-diagonalizing block, as recited in independent claims 1 and 6. In response, Applicant traverses the rejection because Figures 2-11, and in particular, Fig. 2 shows this feature. Page 8, line 25 to page 9, line 12 of the present application, for example, and Fig. 2 discuss and show tri-diagonalization and a matrix that is tri-diagonalized for each block width. More specifically, Fig. 2 shows the process of an m-th divided block, wherein the block is a solid line rectangle defined along a column and a row of the matrix, which are indicated by dotted lines. See also Figs. 3-11 of the present application wherein the tri-diagonalizing blocks are partitioned by dotted lines. For this reason, Applicant respectfully requests withdrawal of the objection to the drawings.

Claims 1-10 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite. In particular, the Examiner rejects claims 1 and 6 as lacking antecedent basis for the term "tri-diaganolized." In response, Applicant amended these claims to provide proper antecedent basis. The Examiner also rejects claims 3-4 and 8-9 because the terms "may not be" and "can" are indefinite. In response, Applicant amended these claims to remove these terms and specifically define the terms of the claims. For this reason, withdrawal of the §112 rejection of claims 1-10 is respectfully requested.

Claims 1-10 stand rejected under 35 U.S.C. §101 because the invention is directed to non-statutory subject matter. In particular, the Examiner asserts that the claims are directed to a mathematical algorithm. In response, Applicant amended the claims to call for a computer-readable storage medium that stores a program. Like claims 1-5, independent claim 6 is also amended by claim 1 to further describe the use of a work area to process data, which calculates an eigenvector of an original matrix. Accordingly, the claims now call for using the work area to obtain the tangible result of a calculated eigenvector of the original matrix. As discussed in Applicant's specification on page 42, line 9 et. seq. a high-performance and scalable eigenvalue/eigenvector parallel calculation method is provided by the present application using a shared-memory type scalar parallel computer. In particular, the present invention improves the speed of the eigenvector conversion calculation to be about ten times faster than the conventional calculation method. Thus, calculating of the eigenvector of the original matrix occurs more quickly, which is a useful, concrete and tangible result. For these reasons, Applicant respectfully requests withdrawal of the §101 rejection of claims 1-10.

Claims 1-10 stand rejected under 35 U.S.C. 102(b) as being anticipated by Phillips et al. ("A Systolic Architecture for the Symmetric Tridiagonal Eigenvalue Problem"). In response, Applicant amended independent claims 1 and 6 to further define a work area that includes a plurality of steps, and respectfully traverses the rejection based on these amendments.

Phillips et al. discloses using algorithms for solving a symmetric tridiagonal eigenvalue problem by using a systolic architecture. However, Phillips et al. fails to disclose or suggest the feature of the present invention, namely, using a memory area for an execution of algorithms so as to increase speed of an eigenvector conversion calculation. More specifically, Phillips et al. fails to disclose using a work area to divide a block formed from a real symmetric matrix or a Hermitian matrix into halves along a column of the matrix, copying a former half of the matrix in the memory area for an array variable, applying reduction to tridiagonal form by use of Householder transform to data in the array variable, obtaining tri-diagonalization of data in the array variable, copying back data in the array variable to the work area, setting a block to be processed as a latter half of the matrix, and repeating these steps until all data in the block is processed. For these reasons, Applicant respectfully requests withdrawal of the §102(b) rejection of the claims.

For all of the foregoing reasons, Applicant submits that this Application is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

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